

# Lean 6-Sigma Helps Projects Exceed Goals

*Early use of methodology improves systems, avoids waste*



**C**altrans was one of the first state departments in California to adopt Lean 6-Sigma, a corporate methodology for improving systems and avoiding waste. Its first projects completed in February already are showing improvements that meet or exceed stated project goals. For example:

- **Reduce the time to develop the scope of work for architectural and engineering (A&E) contracts.** The time from the A&E planning stage to completion of a scope of work and supporting contract documents averaged 111 days and ranged up to 180 days. The process was re-engineered, moving contracts from the planning stage to completing scope of work and other supporting documents in just 29 days.
- **Reduce the time to process A&E contracts.** The time from the date Caltrans' Division of Procurement and Contracts approves a completed scope of work and supporting contract documents to the date the contract is executed averaged 125 days and ranged up to 180 days. The process was simplified and the new estimated time is 45 days.
- **Streamline the safety review process for Caltrans District 12 (Orange County) capital projects.** The safety review process averaged 28.1 working days and has ranged to over 100 working days. This project used many Lean 6-Sigma techniques to streamline the process, and now the pro-

cess is down to 8.7 days – representing a 69 percent time savings.

- **Improve the quality control practice of documents before they are circulated for approvals.** Project reports can contain an unacceptable number of errors and defects before their circulation for approval. Defects often require numerous resubmittals that waste resources. A sampling of project reports revealed a baseline capability of 12.7 defects per page. The project team focused on reducing the most frequent defects, such as formatting and spelling, and the most critical, such as missing or incorrect data. With the process improvements, defects will be reduced by over 75 percent to less than three defects per page.
- **Reduce the time to process disciplinary actions.** The average processing time of formal disciplinary actions was 99 days, resulting in perceptions of ineffectiveness and unaccountability. Failure to address employee issues also affects morale and disrupts the workplace. Under the reworked process, 80 percent of cases now take less than 14 days.
- **Reduce unreported labor expenses.** In the past, Caltrans had been unable to capture all of its personnel service costs due to employee timesheets that were not submitted or approved. This becomes a problem because Caltrans does not recover costs reimbursed to its programs by federal and local govern-

ments for unrecorded personnel service costs. The first stage of implementation showed a 69 percent reduction in unsubmitted timesheets statewide.

- **Reduce time to process “Relocation Agreements” for outdoor advertising displays.** Relocation agreements can take an extremely long time to execute and they did not follow a standard process. This resulted in the average time of more than two years from the date of the request to an initial offer and ranged to four years. The process was standardized, simplified and re-engineered, and the new estimated time to process a relocation agreement is three months.

- **Reduce the time to hire field Maintenance employees.** The hiring process for field maintenance staff was cumbersome and the process could take four to six months. Applying Lean 6-Sigma methodologies reduced the time between a hiring request and an offer of employment to eight weeks.
- **Improve the fleet vehicle and equipment use, replacement and procurement process.** The time from identifying the need for replacement to final replacement approval averaged 243 days and ranged up to 400 days. This process was completely re-engineered, and the time from when the need was identified to the replacement approval was reduced by 95 percent—less than 90 days.

## Caltrans Picks Up Pace in Discrimination Investigations

After participating in the Lean 6-Sigma effort, the Equal Employment Opportunity Program (EEO) showed a 47-percent increase in the number of discrimination complaints it processed, completing 276 investigations in 2015, compared to 188 cases in 2014.

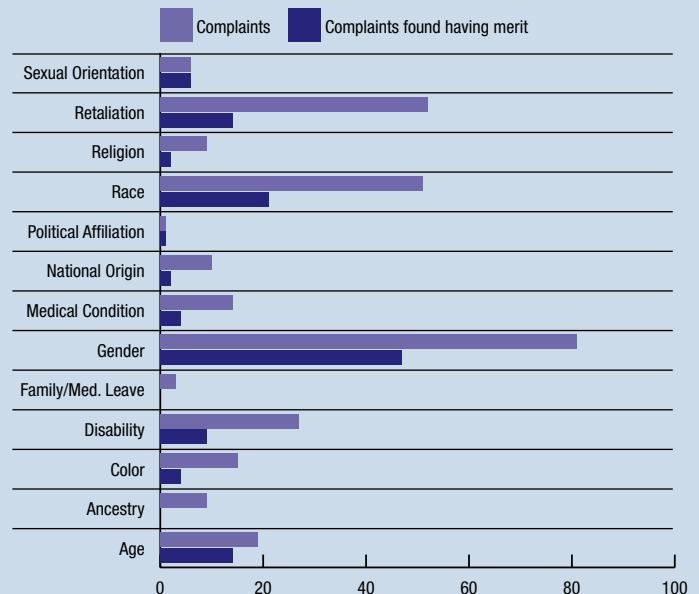
Moreover, investigations that previously took an average of nine to 18 months to complete were being completed within three to six months after opening. Once the program eliminates a backlog of investigations – which is estimated to happen this summer – 95 percent of all complaints are expected to be investigated within 45 business days.

The unit’s participation in the Governor’s Office of Business and Economic Development (Go-Biz) 2015 Lean 6-Sigma program is being credited for much of that improvement.

By implementing improvements identified through the Lean 6-Sigma process, the DCIU standardized its investigative process and removed multiple steps, thus eliminating inefficiency and saving time. It also devised a new Discrimination Complaint Questionnaire form that serves as a guide for EEO officers, supervisors, managers and employees when filing an EEO complaint. The form also gathers more complete information up front, eliminating unnecessary rework.

Caltrans, like all state departments, does not discriminate when it comes to legally protected classes such as age, ancestry, color, disability, marital status, medical condition, national or ethnic origin, political affiliation, race, religion, sex or sexual orientation. Caltrans encourages employees to report activity that may violate that policy. In 2015, Caltrans received 202 such complaints.

### 2015 Number of Complaints and Meritorious Findings



A single complaint can contain multiple protected groups. Of the 276 completed investigations, 85 concerned violations of the department’s EEO policy.

Source: Equal Employment Opportunity Program Review, 2015 (released April 2016)